REMARKS

Claims 1-3, 8-9, 19, 33, and 36-39 are pending, and stand rejected. By this response, Applicants amend claims 1, 19 and 38-39. Applicants now submit that the pending claims are in condition for allowance, and respectfully request allowance thereof.

Claim Amendments

Applicants amend claim 1 to clarify that the method for constructing a gel-forming battery separator comprises embedding particles into pores of the porous support by applying the particles to a side of the porous support and applying a vacuum to an opposite side of the porous support. Support for this amendment can be found throughout the specification, at least at page 3, lines 4-7 and page 8, lines 24-25. No new matter is added.

Applicants amend claim 19 to clarify the composition of the separator. Support for this amendment can be found throughout the specification, at least at page 2, lines 22-25. No new matter is added.

Applicants amend claims 38 and 39 to correct the preambles of these claims, as suggested by the Examiner.

Claims 1-3, 8-9, 19, 33, and 36-39 are now pending.

Rejections Pursuant to 35 U.S.C. § 112

35 U.S.C. § 112, first paragraph

The Examiner rejects claims 1-3, 8, 9, 19, 33, and 36-39 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Specifically, the Examiner rejects claim 1, stating that the limitation "embedding particles in pores of the porous support; applying the particles to a side of the porous support and applying a vacuum to an opposite side of the porous support" is not supported in the original disclosure. In an effort to expedite prosecution, and without admitting that the Examiner's rejection is appropriate, Applicants have amended claim 1 to clarify the embedding process.

The Examiner also rejects claim 19, stating that the limitation "placing gel-forming battery separators between each of the at least one pair of electrodes, each separator comprising: a porous support; embedding particles within pores of the porous support, the particles having surfaces comprising a silanol group" is not supported by the original disclosure because the original disclosure does not disclose embedding particles within the pores of the gel-forming battery separators that already contain particles otherwise they would not be gel-forming. Although Applicants disagree with the Examiner's rejection, claim 19 has been amended to clarify the contents of the separator.

35 U.S.C. § 112, second paragraph

The Examiner rejects claims 38 and 39 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. In particular, the Examiner states that the preamble of each claim is indefinite because claim 19 does not disclose a method of forming a gel battery separator, but rather is drawn to a method of forming a battery. As per the Examiner's suggestion, Applicants have amended the preambles of claims 38 and 39 to recite a battery rather than a battery separator.

Rejections Pursuant to 35 U.S.C. § 102(b)/103(a)

The Examiner rejects claims 8 and 9 under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 5,091,275 to Brecht et al. Specifically, the Examiner argues:

> The product-by-process limitations of claims 8 and 9 are not given patentable weight since the courts have held that patentability is based on a product itself, even if the prior art product is made by a different process (citations omitted).
>
> Brecht et al. disclose lead acid batteries comprising a plurality of positive and negative electrode plates and a separator disposed between each pair of electrodes (col. 1, lines 10-13). The separators are formed of insulating material and are porous (col. 1, lines 15-19). The separator comprises a mat formed of glass microfibers and the mat is impregnated with a binder that is an aqueous mixtures of colloidal silica particles and a sulfate salt (col. 2, lines 18-28). Electrostatic

> precipitation of the colloidal silica inherently takes place during the impregnation of the mixture into the mat. The colloidal silica particles have diameters ranging between 4 to 80 microns and that other forms of silica particles may be used such as fumed or precipitated silica (col. 3, lines 5-15).
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> When silica mixed with sulfuric acid electrolyte of the battery, the silica forms a three-dimensional reticulated structure throughout the electrolyte and the reticulated silica increase the viscosity of the electrolyte to such an extent that the resultant fluid is commonly described as a gel (col. 1, lines 40-46). The silica within the mat inherently forms a gel when exposed to the electrolyte of the battery.

Applicants respectfully disagree with the Examiner's rejection.

Brecht does not teach or suggest the recitations of claims 8 and 9.

Claims 8 and 9 recite a gel-forming battery that is constructed such that a contact with the liquid electrolyte is capable of forming a *gelled matrix* comprising electrolyte within the porous support. Nowhere does Brecht teach or even suggest such a battery. Rather, Brecht teaches a separator that comprises a *expandable mat* formed of glass micro-fibers. The mat is impregnated with a binder that is an aqueous mixture of colloidal silica particles and a sulfate salt, and then dried and compressed. As the battery electrolyte contacts the binder, the salt dissolves within the electrolyte, resulting in *expansion* of the mat against the surfaces of the electrode plates to generate the necessary operating contact between the plates and separator. Accordingly, claims 8 and 9 distinguish over Brecht and represent allowable subject matter.

The Examiner's Inherency Rejection is Improper.

Further, in his rejection the Examiner states, "Electrostatic precipitation of the colloidal silica inherently takes place during the impregnation of the mixture into the mat." The Examiner also states that "the silica within the mat inherently forms a gel when exposed to the electrolyte of the battery." Applicants disagree with the Examiner, as he has failed to establish inherency.

MPEP § 2112 states:

> The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of

> that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.3d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981)…"Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted).
>
> "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat App. & Inter. 1990).

In his rejection, the Examiner merely makes cursory statements, and nowhere does he provide any basis in fact and/or technical reasoning for his determination of inherency. In fact, the specification of Brecht suggests that a gel may not be formed as a result of the addition of the sulfuric acid electrolyte to the battery:

> The precipitate of the salt and silica particles breaks down as the salt dissolves in the electrolyte. The high surface area and surface chemistry of the silica enhances oxygen transport between electrodes. It can be appreciated, therefore, that the binder employed in the present invention provides, in addition to an effective mechanism for binding and releasing the glass mat, a component that enhances the oxygen recombination efficiency of the cell once the binder is exposed to the electrolyte.

Col. 4, lines 8-17.

Accordingly, because his rejections have not met the requirements noted by MPEP § 2112 and the courts, the Examiner's inherency rejections are improper. Accordingly, claims 8 and 9 represent allowable subject matter.

Conclusion

Applicants submit that claims 1-3, 8-9, 19, 33, and 36-39 are in condition for allowance, and allowance thereof is respectfully requested. Applicants encourage the Examiner to telephone the undersigned in the event that such communication might expedite prosecution of this matter.

Respectfully submitted,

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